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SEQUENCE LISTING

<110> Scanlan, Matthew J.  
Old, Lloyd J.  
Stockert, Elisabeth  
Chen, Yao-Tseng

<120> Colon Cancer Antigen Panel

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The schematic representation of the 1200-bp DNA fragment shows a linear sequence of nucleotides. The fragment is divided into several regions, with the central region being the largest and most complex. The regions are labeled with their respective restriction enzyme sites: NotI, XbaI, PstI, SmaI, KpnI, BamHI, EcoRI, HindIII, SalI, XhoI, and ClaI. The fragment is also labeled with its total size, 1200 bp.

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<213> Homo sapien

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104050-20367360



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Val Trp Ile Pro Glu Pro Phe His Ala Glu Val Pro Ala Asp Trp	1010					1015					1020				
Trp Asp Lys Glu Ala Asp Lys Ser Leu Leu Ile Gly Val Phe Lys															



1025	1030	1035
His Gly Tyr Glu Lys Tyr	Asn Ser Met Arg Ala	Asp Pro Ala Leu
1040	1045	1050
Cys Phe Leu Glu Arg Val	Gly Met Pro Asp Ala	Lys Ala Ile Ala
1055	1060	1065
Ala Glu Gln Arg Gly Thr	Asp Met Leu Ala Asp	Gly Gly Asp Gly
1070	1075	1080
Gly Glu Phe Asp Arg Glu	Asp Glu Asp Pro Glu	Tyr Lys Pro Thr
1085	1090	1095
Arg Thr Pro Phe Lys Asp	Glu Ile Asp Glu Phe	Ala Asn Ser Pro
1100	1105	1110
Ser Glu Asp Lys Glu Glu	Ser Met Glu Ile His	Ala Thr Gly Lys
1115	1120	1125
His Ser Glu Ser Asn Ala	Glu Leu Gly Gln Leu	Tyr Trp Pro Asn
1130	1135	1140
Thr Ser Thr Leu Thr Thr	Arg Leu Arg Arg Leu	Ile Thr Ala Tyr
1145	1150	1155
Gln Arg Ser Tyr Lys Arg	Gln Gln Met Arg Gln	Glu Ala Leu Met
1160	1165	1170
Lys Thr Asp Arg Arg Arg	Arg Arg Pro Arg Glu	Glu Val Arg Ala
1175	1180	1185
Leu Glu Ala Glu Arg Glu	Ala Ile Ile Ser Glu	Lys Arg Gln Lys
1190	1195	1200
Trp Thr Arg Arg Glu Glu	Ala Asp Phe Tyr Arg	Val Val Ser Thr
1205	1210	1215
Phe Gly Val Ile Phe Asp	Pro Val Lys Gln Gln	Phe Asp Trp Asn
1220	1225	1230
Gln Phe Arg Ala Phe Ala	Arg Leu Asp Lys Lys	Ser Asp Glu Ser
1235	1240	1245
Leu Glu Lys Tyr Phe Ser	Cys Phe Val Ala Met	Cys Arg Arg Val
1250	1255	1260
Cys Arg Met Pro Val Lys	Pro Asp Asp Glu Pro	Pro Asp Leu Ser
1265	1270	1275
Ser Ile Ile Glu Pro Ile	Thr Glu Glu Arg Ala	Ser Arg Thr Leu
1280	1285	1290
Tyr Arg Ile Glu Leu Leu	Arg Lys Ile Arg Glu	Gln Val Leu His
1295	1300	1305
His Pro Gln Leu Gly Glu	Arg Leu Lys Leu Cys	Gln Pro Ser Leu
1310	1315	1320
Asp Leu Pro Glu Trp Trp	Glu Cys Gly Arg His	Asp Arg Asp Leu

1025 1030 1035

1325		1330		1335
Leu Val Gly Ala Ala Lys His	Gly Val Ser Arg Thr	Asp Tyr His		
1340	1345	1350		
Ile Leu Asn Asp Pro Glu Leu	Ser Phe Leu Asp Ala	His Lys Asn		
1355	1360	1365		
Phe Ala Gln Asn Arg Gly Ala	Gly Asn Thr Ser Ser	Leu Asn Pro		
1370	1375	1380		
Leu Ala Val Gly Phe Val Gln	Thr Pro Pro Val Ile	Ser Ser Ala		
1385	1390	1395		
His Ile Gln Asp Glu Arg Val	Leu Glu Gln Ala Glu	Gly Lys Val		
1400	1405	1410		
Glu Glu Pro Glu Asn Pro Ala	Ala Lys Glu Lys Cys	Glu Gly Lys		
1415	1420	1425		
Glu Glu Glu Glu Glu Thr Asp	Gly Ser Gly Lys Glu	Ser Lys Gln		
1430	1435	1440		
Glu Cys Glu Ala Glu Ala Ser	Ser Val Lys Asn Glu	Leu Lys Gly		
1445	1450	1455		
Val Glu Val Gly Ala Asp Thr	Gly Ser Lys Ser Ile	Ser Glu Lys		
1460	1465	1470		
Gly Ser Glu Glu Asp Glu Glu	Glu Lys Leu Glu Asp	Asp Asp Lys		
1475	1480	1485		
Ser Glu Glu Ser Ser Gln Pro	Glu Ala Gly Ala Val	Ser Arg Gly		
1490	1495	1500		
Lys Asn Phe Asp Glu Glu Ser	Asn Ala Ser Met Ser	Thr Ala Arg		
1505	1510	1515		
Asp Glu Thr Arg Asp Gly Phe	Tyr Met Glu Asp Gly	Asp Pro Ser		
1520	1525	1530		
Val Ala Gln Leu Leu His Glu	Arg Thr Phe Ala Phe	Ser Phe Trp		
1535	1540	1545		
Pro Lys Asp Arg Val Met Ile	Asn Arg Leu Asp Asn	Ile Cys Glu		
1550	1555	1560		
Ala Val Leu Lys Gly Lys Trp	Pro Val Asn Arg Arg	Gln Met Phe		
1565	1570	1575		
Asp Phe Gln Gly Leu Ile Pro	Gly Tyr Thr Pro Thr	Thr Val Asp		
1580	1585	1590		
Ser Pro Leu Gln Lys Arg Ser	Phe Ala Glu Leu Ser	Met Val Gly		
1595	1600	1605		
Gln Ala Ser Ile Ser Gly Ser	Glu Asp Ile Thr Thr	Ser Pro Gln		
1610	1615	1620		
Leu Ser Lys Glu Asp Ala Leu	Asn Leu Ser Val Pro	Arg Gln Arg		

1625	1630	1635
Arg Arg Arg Arg Arg Lys	Ile Glu Ile Glu Ala Glu	Arg Ala Ala
1640	1645	1650
Lys Arg Arg Asn Leu Met	Glu Met Val Ala Gln Leu	Arg Glu Ser
1655	1660	1665
Gln Val Val Ser Glu Asn	Gly Gln Glu Lys Val Val	Asp Leu Ser
1670	1675	1680
Lys Ala Ser Arg Glu Ala	Thr Ser Ser Thr Ser Asn	Phe Ser Ser
1685	1690	1695
Leu Ser Ser Lys Phe Ile	Leu Pro Asn Val Ser Thr	Pro Val Ser
1700	1705	1710
Asp Ala Phe Lys Thr Gln	Met Glu Leu Leu Gln Ala	Gly Leu Ser
1715	1720	1725
Arg Thr Pro Thr Arg His	Leu Leu Asn Gly Ser Leu	Val Asp Gly
1730	1735	1740
Glu Pro Pro Met Lys Arg	Arg Arg Gly Arg Arg Lys	Asn Val Glu
1745	1750	1755
Gly Leu Asp Leu Leu Phe	Met Ser His Lys Arg Thr	Ser Leu Ser
1760	1765	1770
Ala Glu Asp Ala Glu Val	Thr Lys Ala Phe Glu Glu	Asp Ile Glu
1775	1780	1785
Thr Pro Pro Thr Arg Asn	Ile Pro Ser Pro Gly Gln	Leu Asp Pro
1790	1795	1800
Asp Thr Arg Ile Pro Val	Ile Asn Leu Glu Asp Gly	Thr Arg Leu
1805	1810	1815
Val Gly Glu Asp Ala Pro	Lys Asn Lys Asp Leu Val	Glu Trp Leu
1820	1825	1830
Lys Leu His Pro Thr Tyr	Thr Val Asp Met Pro Ser	Tyr Val Pro
1835	1840	1845
Lys Asn Ala Asp Val Leu	Phe Ser Ser Phe Gln Lys	Pro Lys Gln
1850	1855	1860
Lys Arg His Arg Cys Arg	Asn Pro Asn Lys Leu Asp	Ile Asn Thr
1865	1870	1875
Leu Thr Gly Glu Glu Arg	Val Pro Val Val Asn Lys	Arg Asn Gly
1880	1885	1890
Lys Lys Met Gly Gly Ala	Met Ala Pro Pro Met Lys	Asp Leu Pro
1895	1900	1905
Arg Trp Leu Glu Glu Asn	Pro Glu Phe Ala Val Ala	Pro Asp Trp
1910	1915	1920
Thr Asp Ile Val Lys Gln	Ser Gly Phe Val Pro Glu	Ser Met Phe

104050-20904360

1925		1930		1935
Asp Arg	Leu Leu Thr Gly	Pro Val Val Arg Gly	Glu Gly Ala Ser	
1940		1945	1950	
Arg Arg	Gly Arg Arg Pro	Lys Ser Glu Ile Ala	Arg Ala Ala	
1955		1960	1965	

<210> 17  
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 <213> Homo sapiens

<220>  
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 <222> (84)..(84)  
 <223> x = any amino acid

<220>  
 <221> UNSURE  
 <222> (100)..(100)  
 <223> x = any amino acid

<400> 17

Arg	Pro	Ser	Leu	Pro	Arg	Ala	Leu	Pro	Ala	Ala	Pro	His	Glu	Arg	Ser
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Pro	Ala	Arg	Pro	Gly	Ser	Val	Gly	Gly	Gly	Ala	Pro	Pro	Met	Leu	Leu
			20					25					30		
Gln	Pro	Ala	Pro	Cys	Ala	Pro	Ser	Ala	Gly	Phe	Pro	Arg	Pro	Leu	Ala
		35					40					45			
Ala	Pro	Gly	Ala	Met	His	Leu	Phe	Ala	Glu	Gly	His	His	Val	His	Gln
		50				55					60				
Asp	Leu	Arg	Gly	Arg	Pro	Ala	Val	Pro	His	Tyr	Arg	Arg	Leu	Ala	Gln
65					70					75					80
Glu	Val	Leu	Xaa	Gly	Leu	Arg	Arg	His	Leu	Arg	Arg	Pro	Trp	Ser	Ser
			85						90					95	
Pro	Thr	Ala	Xaa	Arg	Ala	Ser	Pro	Ala	Ala	Thr	Ala	Ser			
			100					105							

<210> 18  
 <211> 897  
 <212> PRT  
 <213> Homo sapiens

<400> 18

Glu	Phe	Leu	Leu	Ser	Lys	Ser	Lys	Glu	Pro	Thr	Pro	Gly	Gly	Leu	Asn
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His	Ser	Leu	Pro	Gln	His	Pro	Lys	Cys	Trp	Gly	Ala	His	His	Ala	Ser
			20					25					30		

Leu	Asp	Gln	Ser	Ser	Pro	Pro	Gln	Ser	Gly	Pro	Pro	Gly	Thr	Pro	Pro
		35					40					45			
Ser	Tyr	Lys	Leu	Pro	Leu	Pro	Gly	Pro	Tyr	Asp	Ser	Arg	Asp	Asp	Phe
	50					55					60				
Pro	Leu	Arg	Lys	Thr	Ala	Ser	Glu	Pro	Asn	Leu	Lys	Val	Arg	Ser	Arg
65					70					75					80
Leu	Lys	Gln	Lys	Val	Ala	Glu	Arg	Arg	Ser	Ser	Pro	Leu	Leu	Arg	Arg
				85					90					95	
Lys	Asp	Gly	Thr	Val	Ile	Ser	Thr	Phe	Lys	Lys	Arg	Ala	Val	Glu	Ile
			100					105					110		
Thr	Gly	Ala	Gly	Pro	Gly	Ala	Ser	Ser	Val	Cys	Asn	Ser	Ala	Pro	Gly
		115					120					125			
Ser	Gly	Pro	Ser	Ser	Pro	Asn	Ser	Ser	His	Ser	Thr	Ile	Ala	Glu	Asn
	130					135					140				
Gly	Phe	Thr	Gly	Ser	Val	Pro	Asn	Ile	Pro	Thr	Glu	Met	Leu	Pro	Gln
145					150					155					160
His	Arg	Ala	Leu	Pro	Leu	Asp	Ser	Ser	Pro	Asn	Gln	Phe	Ser	Leu	Tyr
				165					170					175	
Thr	Ser	Pro	Ser	Leu	Pro	Asn	Ile	Ser	Leu	Gly	Leu	Gln	Ala	Thr	Val
			180					185					190		
Thr	Val	Thr	Asn	Ser	His	Leu	Thr	Ala	Ser	Pro	Lys	Leu	Ser	Thr	Gln
		195					200					205			
Gln	Glu	Ala	Glu	Arg	Gln	Ala	Leu	Gln	Ser	Leu	Arg	Gln	Gly	Gly	Thr
	210					215					220				
Leu	Thr	Gly	Lys	Phe	Met	Ser	Thr	Ser	Ser	Ile	Pro	Gly	Cys	Leu	Leu
225				230						235					240
Gly	Val	Ala	Leu	Glu	Gly	Asp	Gly	Ser	Pro	His	Gly	His	Ala	Ser	Leu
				245				250						255	
Leu	Gln	His	Val	Leu	Leu	Leu	Glu	Gln	Ala	Arg	Gln	Gln	Ser	Thr	Leu
			260				265						270		
Ile	Ala	Val	Pro	Leu	His	Gly	Gln	Ser	Pro	Leu	Val	Thr	Gly	Glu	Arg
		275					280					285			
Val	Ala	Thr	Ser	Met	Arg	Thr	Val	Gly	Lys	Leu	Pro	Arg	His	Arg	Pro
	290					295					300				
Leu	Ser	Arg	Thr	Gln	Ser	Ser	Pro	Leu	Pro	Gln	Ser	Pro	Gln	Ala	Leu
305					310					315					320
Gln	Gln	Leu	Val	Met	Gln	Gln	Gln	His	Gln	Gln	Phe	Leu	Glu	Lys	Gln
				325					330					335	
Lys	Gln	Gln	Gln	Leu	Gln	Leu	Gly	Lys	Ile	Leu	Thr	Lys	Thr	Gly	Glu
			340				345						350		



Val Gly Lys Val Leu Ile Val Asp Trp Asp Ile His His Gly Asn Gly  
675 680 685

Thr Gln Gln Ala Phe Tyr Asn Asp Pro Ser Val Leu Tyr Ile Ser Leu  
690 695 700

His Arg Tyr Asp Asn Gly Asn Phe Phe Pro Gly Ser Gly Ala Pro Glu  
705 710 715 720

Glu Val Gly Gly Gly Pro Gly Val Gly Tyr Asn Val Asn Val Ala Trp  
725 730 735

Thr Gly Gly Val Asp Pro Pro Ile Gly Asp Val Glu Tyr Leu Thr Ala  
740 745 750

Phe Arg Thr Val Val Met Pro Ile Ala His Glu Phe Ser Pro Asp Val  
755 760 765

Val Leu Val Ser Ala Gly Phe Asp Ala Val Glu Gly His Leu Ser Pro  
770 775 780

Leu Gly Gly Tyr Ser Val Thr Ala Arg Cys Phe Gly His Leu Thr Arg  
785 790 795 800

Gln Leu Met Thr Leu Ala Gly Gly Arg Val Val Leu Ala Leu Glu Gly  
805 810 815

Gly His Asp Leu Thr Ala Ile Cys Asp Ala Ser Glu Ala Cys Val Ser  
820 825 830

Ala Leu Leu Ser Val Lys Leu Gln Pro Leu Asp Glu Ala Val Leu Gln  
835 840 845

Gln Lys Pro Asn Ile Asn Ala Val Ala Thr Leu Glu Lys Val Ile Glu  
850 855 860

Ile Gln Ser Lys His Trp Ser Cys Val Gln Lys Phe Ala Ala Gly Leu  
865 870 875 880

Gly Arg Ser Leu Arg Gly Ala Gln Ala Gly Glu Thr Glu Glu Ala Glu  
885 890 895

Met

<210> 19  
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<212> PRT  
<213> Homo sapiens

<400> 19

Met Phe Asp Tyr Met Asp Cys Glu Leu Lys Leu Ser Glu Ser Val Phe  
1 5 10 15

Arg Gln Leu Asn Thr Ala Ile Ala Val Ser Gln Met Ser Ser Gly Gln  
20 25 30

Cys Arg Leu Ala Pro Leu Ile Gln Val Ile Gln Asp Cys Ser His Leu

104050 = 20967650

35					40					45						
Tyr	His	Tyr	Thr	Val	Lys	Leu	Leu	Phe	Lys	Leu	His	Ser	Cys	Leu	Pro	
50					55					60						
Ala	Asp	Thr	Leu	Gln	Gly	His	Arg	Asp	Arg	Phe	His	Glu	Gln	Phe	His	
65					70					75					80	
Ser	Leu	Arg	Asn	Phe	Phe	Arg	Arg	Ala	Ser	Asp	Met	Leu	Tyr	Phe	Lys	
85					90					95						
Arg	Leu	Ile	Gln	Ile	Pro	Arg	Leu	Pro	Glu	Gly	Pro	Pro	Asn	Phe	Leu	
100					105					110						
Arg	Ala	Ser	Ala	Leu	Ala	Glu	His	Ile	Lys	Pro	Val	Val	Val	Ile	Pro	
115					120					125						
Glu	Glu	Ala	Pro	Glu	Asp	Glu	Glu	Pro	Glu	Asn	Leu	Ile	Glu	Ile	Ser	
130					135					140						
Thr	Gly	Pro	Pro	Ala	Gly	Glu	Pro	Val	Val	Val	Ala	Asp	Leu	Phe	Asp	
145					150					155					160	
Gln	Thr	Phe	Gly	Pro	Pro	Asn	Gly	Ser	Val	Lys	Asp	Asp	Arg	Asp	Leu	
165					170					175						
Gln	Ile	Glu	Ser	Leu	Lys	Arg	Glu	Val	Glu	Met	Leu	Arg	Ser	Glu	Leu	
180					185					190						
Glu	Lys	Ile	Lys	Leu	Glu	Ala	Gln	Arg	Tyr	Ile	Ala	Gln	Leu	Lys	Ser	
195					200					205						
Gln	Val	Asn	Ala	Leu	Glu	Gly	Glu	Leu	Glu	Glu	Gln	Arg	Lys	Gln	Lys	
210					215					220						
Gln	Lys	Ala	Leu	Val	Asp	Asn	Glu	Gln	Leu	Arg	His	Glu	Leu	Ala	Gln	
225					230					235					240	
Leu	Arg	Ala	Ala	Gln	Leu	Glu	Gly	Glu	Arg	Ser	Gln	Gly	Leu	Arg	Glu	
245					250					255						
Glu	Ala	Glu	Arg	Lys	Ala	Ser	Ala	Thr	Glu	Ala	Arg	Tyr	Asn	Lys	Leu	
260					265					270						
Lys	Glu	Lys	His	Ser	Glu	Leu	Val	His	Val	His	Ala	Glu	Leu	Leu	Arg	
275					280					285						
Lys	Asn	Ala	Asp	Thr	Ala	Lys	Gln	Leu	Thr	Val	Thr	Gln	Gln	Ser	Gln	
290					295					300						
Glu	Glu	Val	Ala	Arg	Val	Lys	Glu	Gln	Leu	Ala	Phe	Gln	Val	Glu	Gln	
305					310					315					320	
Val	Lys	Arg	Glu	Ser	Glu	Leu	Lys	Leu	Glu	Glu	Lys	Ser	Asp	Gln	Leu	
325					330					335						
Glu	Lys	Leu	Lys	Arg	Glu	Leu	Glu	Ala	Lys	Ala	Gly	Glu	Leu	Ala	Arg	
340					345					350						
Ala	Gln	Glu	Ala	Leu	Ser	His	Thr	Glu	Gln	Ser	Lys	Ser	Glu	Leu	Ser	



	355					360					365				
Ser	Arg 370	Leu	Asp	Thr	Leu	Ser 375	Ala	Glu	Lys	Asp	Ala 380	Leu	Ser	Gly	Ala
Val 385	Arg	Gln	Arg	Glu	Ala 390	Asp	Leu	Leu	Ala	Ala 395	Gln	Ser	Leu	Val	Arg 400
Glu	Thr	Glu	Ala	Ala 405	Leu	Ser	Arg	Glu	Gln 410	Gln	Arg	Ser	Ser	Gln 415	Glu
Gln	Gly	Glu	Leu	Gln 420	Gly	Arg	Leu	Ala 425	Glu	Arg	Glu	Ser	Gln 430	Glu	Gln
Gly	Leu	Arg 435	Gln	Arg	Leu	Leu	Asp 440	Glu	Gln	Phe	Ala	Val 445	Leu	Arg	Gly
Ala	Ala 450	Ala	Glu	Ala	Ala	Gly 455	Ile	Leu	Gln	Asp	Ala 460	Val	Ser	Lys	Leu
Asp 465	Asp	Pro	Leu	His	Leu 470	Arg	Cys	Thr	Ser	Ser 475	Pro	Asp	Tyr	Leu	Val 480
Ser	Arg	Ala	Gln	Glu 485	Ala	Leu	Asp	Ala	Val 490	Ser	Thr	Leu	Glu	Glu 495	Gly
His	Ala	Gln	Tyr 500	Leu	Thr	Ser	Leu	Ala 505	Asp	Ala	Ser	Ala	Leu 510	Val	Ala
Ala	Leu	Thr 515	Arg	Phe	Ser	His	Leu 520	Ala	Ala	Asp	Thr	Ile 525	Ile	Asn	Gly
Gly	Ala 530	Thr	Ser	His	Leu	Ala 535	Pro	Thr	Asp	Pro	Ala 540	Asp	Arg	Leu	Ile
Asp 545	Thr	Cys	Arg	Glu	Cys 550	Gly	Ala	Arg	Ala	Leu 555	Glu	Leu	Met	Gly	Gln 560
Leu	Gln	Asp	Gln	Gln 565	Ala	Leu	Arg	His	Met 570	Gln	Ala	Ser	Leu	Val 575	Arg
Thr	Pro	Leu	Gln 580	Gly	Ile	Leu	Gln	Leu 585	Gly	Gln	Glu	Leu	Lys 590	Pro	Lys
Ser	Leu	Asp 595	Val	Arg	Gln	Glu	Glu 600	Leu	Gly	Ala	Val	Val 605	Asp	Lys	Glu
Met	Ala 610	Ala	Thr	Ser	Ala	Ala 615	Ile	Glu	Asp	Ala	Val 620	Arg	Arg	Ile	Glu
Asp 625	Met	Met	Asn	Gln	Ala 630	Arg	His	Ala	Ser	Ser 635	Gly	Val	Lys	Leu	Glu 640
Val	Asn	Glu	Arg	Ile 645	Leu	Asn	Ser	Cys	Thr 650	Asp	Leu	Met	Lys	Ala 655	Ile
Arg	Leu	Leu	Val 660	Thr	Thr	Ser	Thr	Ser 665	Leu	Gln	Lys	Glu	Ile 670	Val	Glu
Ser	Gly	Arg	Gly	Ala	Ala	Thr	Gln	Gln	Glu	Phe	Tyr	Ala	Lys	Asn	Ser

675					680					685					
Arg	Trp	Thr	Glu	Gly	Leu	Ile	Ser	Ala	Ser	Lys	Ala	Val	Gly	Trp	Gly
690					695					700					
Ala	Thr	Gln	Leu	Val	Glu	Ala	Ala	Asp	Lys	Val	Val	Leu	His	Thr	Gly
705					710					715					720
Lys	Tyr	Glu	Glu	Leu	Ile	Val	Cys	Ser	His	Glu	Ile	Ala	Ala	Ser	Thr
				725					730					735	
Ala	Gln	Leu	Val	Ala	Ala	Ser	Lys	Val	Lys	Ala	Asn	Lys	His	Ser	Pro
			740					745					750		
His	Leu	Ser	Arg	Leu	Gln	Glu	Cys	Ser	Arg	Thr	Val	Asn	Glu	Arg	Ala
			755				760					765			
Ala	Asn	Val	Val	Ala	Ser	Thr	Lys	Ser	Gly	Gln	Glu	Gln	Ile	Glu	Asp
							775					780			
Arg	Asp	Thr	Met	Asp	Phe	Ser	Gly	Leu	Ser	Leu	Ile	Lys	Leu	Lys	Lys
785					790					795					800
Gln	Glu	Met	Glu	Thr	Gln	Val	Arg	Val	Leu	Glu	Leu	Glu	Lys	Thr	Leu
				805					810					815	
Glu	Ala	Glu	Arg	Met	Arg	Leu	Gly	Glu	Leu	Arg	Lys	Gln	His	Tyr	Val
				820				825					830		
Leu	Ala	Gly	Ala	Ser	Gly	Ser	Pro	Gly	Glu	Glu	Val	Ala	Ile	Arg	Pro
			835				840					845			
Ser	Thr	Ala	Pro	Arg	Ser	Val	Thr	Thr	Lys	Lys	Pro	Pro	Leu	Ala	Gln
							855					860			
Lys	Pro	Ser	Val	Ala	Pro	Arg	Gln	Asp	His	Gln	Leu	Asp	Lys	Lys	Asp
865					870					875					880
Gly	Ile	Tyr	Pro	Ala	Gln	Leu	Val	Asn	Tyr						
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 <212> PRT  
 <213> Homo sapiens

<400> 20

Met	Ala	Met	Asp	Ser	Ser	Leu	Gln	Ala	Arg	Leu	Phe	Pro	Gly	Leu	Ala
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Ile	Lys	Ile	Gln	Arg	Ser	Asn	Gly	Leu	Ile	His	Ser	Ala	Asn	Val	Arg
			20					25					30		
Thr	Val	Asn	Leu	Glu	Lys	Ser	Cys	Val	Ser	Val	Glu	Trp	Ala	Glu	Gly
		35					40					45			
Gly	Ala	Thr	Lys	Gly	Lys	Glu	Ile	Asp	Phe	Asp	Asp	Val	Ala	Ala	Ile
	50					55					60				

Asn	Pro	Glu	Leu	Leu	Gln	Leu	Leu	Pro	Leu	His	Pro	Lys	Asp	Asn	Leu
65					70					75					80
Pro	Leu	Gln	Glu	Asn	Val	Thr	Ile	Gln	Lys	Gln	Lys	Arg	Arg	Ser	Val
				85					90					95	
Asn	Ser	Lys	Ile	Pro	Ala	Pro	Lys	Glu	Ser	Leu	Arg	Ser	Arg	Ser	Thr
			100					105					110		
Arg	Met	Ser	Thr	Val	Ser	Glu	Leu	Arg	Ile	Thr	Ala	Gln	Glu	Asn	Asp
		115					120					125			
Met	Glu	Val	Glu	Leu	Pro	Ala	Ala	Ala	Asn	Ser	Arg	Lys	Gln	Phe	Ser
	130					135					140				
Val	Pro	Pro	Ala	Pro	Thr	Arg	Pro	Ser	Cys	Pro	Ala	Val	Ala	Glu	Ile
145					150					155					160
Pro	Leu	Arg	Met	Val	Ser	Glu	Glu	Met	Glu	Glu	Gln	Val	His	Ser	Ile
				165					170					175	
Arg	Gly	Ser	Ser	Ser	Ala	Asn	Pro	Val	Asn	Ser	Val	Arg	Arg	Lys	Ser
			180					185					190		
Cys	Leu	Val	Lys	Glu	Val	Glu	Lys	Met	Lys	Asn	Lys	Arg	Glu	Glu	Lys
		195					200					205			
Lys	Ala	Gln	Asn	Ser	Glu	Met	Arg	Met	Lys	Arg	Ala	Gln	Glu	Tyr	Asp
	210					215					220				
Ser	Ser	Phe	Pro	Asn	Trp	Glu	Phe	Ala	Arg	Met	Ile	Lys	Glu	Phe	Arg
225					230					235					240
Ala	Thr	Leu	Glu	Cys	His	Pro	Leu	Thr	Met	Thr	Asp	Pro	Ile	Glu	Glu
				245					250					255	
His	Arg	Ile	Cys	Val	Cys	Val	Arg	Lys	Arg	Pro	Leu	Asn	Lys	Gln	Glu
			260					265					270		
Leu	Ala	Lys	Lys	Glu	Ile	Asp	Val	Ile	Ser	Ile	Pro	Ser	Lys	Cys	Leu
		275					280					285			
Leu	Leu	Val	His	Glu	Pro	Lys	Leu	Lys	Val	Asp	Leu	Thr	Lys	Tyr	Leu
		290				295					300				
Glu	Asn	Gln	Ala	Phe	Cys	Phe	Asp	Phe	Ala	Phe	Asp	Glu	Thr	Ala	Ser
305					310					315					320
Asn	Glu	Val	Val	Tyr	Arg	Phe	Thr	Ala	Arg	Pro	Leu	Val	Gln	Thr	Ile
				325					330					335	
Phe	Glu	Gly	Gly	Lys	Ala	Thr	Cys	Phe	Ala	Tyr	Gly	Gln	Thr	Gly	Ser
			340					345					350		
Gly	Lys	Thr	His	Thr	Met	Gly	Gly	Asp	Leu	Ser	Gly	Lys	Ala	Gln	Asn
		355					360					365			
Ala	Ser	Lys	Gly	Ile	Tyr	Ala	Met	Ala	Ser	Arg	Asp	Val	Phe	Leu	Leu
		370				375					380				

Lys Asn Gln Pro Cys Tyr Arg Lys Leu Gly Leu Glu Val Tyr Val Thr  
 385 390 395 400  
 Phe Phe Glu Ile Tyr Asn Gly Lys Leu Phe Asp Leu Leu Asn Lys Lys  
 405 410 415  
 Ala Lys Leu Arg Val Leu Glu Asp Gly Lys Gln Gln Val Gln Val Val  
 420 425 430  
 Gly Leu Gln Glu His Leu Val Asn Ser Ala Asp Asp Val Ile Lys Met  
 435 440 445  
 Leu Asp Met Gly Ser Ala Cys Arg Thr Ser Gly Gln Thr Phe Ala Asn  
 450 455 460  
 Ser Asn Ser Ser Arg Ser His Ala Cys Phe Gln Ile Ile Leu Arg Ala  
 465 470 475 480  
 Lys Gly Arg Met His Gly Lys Phe Ser Leu Val Asp Leu Ala Gly Asn  
 485 490 495  
 Glu Arg Gly Ala Asp Thr Ser Ser Ala Asp Arg Gln Thr Arg Met Glu  
 500 505 510  
 Gly Ala Glu Ile Asn Lys Ser Leu Leu Ala Leu Lys Glu Cys Ile Arg  
 515 520 525  
 Ala Leu Gly Gln Asn Lys Ala His Thr Pro Phe Arg Glu Ser Lys Leu  
 530 535 540  
 Thr Gln Val Leu Arg Asp Ser Phe Ile Gly Glu Asn Ser Arg Thr Cys  
 545 550 555 560  
 Met Ile Ala Thr Ile Ser Pro Gly Ile Ser Ser Cys Glu Tyr Thr Leu  
 565 570 575  
 Asn Thr Leu Arg Tyr Ala Asp Arg Val Lys Glu Leu Ser Pro His Ser  
 580 585 590  
 Gly Pro Ser Gly Glu Gln Leu Ile Gln Met Glu Thr Glu Glu Met Glu  
 595 600 605  
 Ala Cys Ser Asn Gly Ala Leu Ile Pro Gly Asn Leu Ser Lys Glu Glu  
 610 615 620  
 Glu Glu Leu Ser Ser Gln Met Ser Ser Phe Asn Glu Ala Met Thr Gln  
 625 630 635 640  
 Ile Arg Glu Leu Glu Glu Lys Ala Met Glu Glu Leu Lys Glu Ile Ile  
 645 650 655  
 Gln Gln Gly Pro Asp Trp Leu Glu Leu Ser Glu Met Thr Glu Gln Pro  
 660 665 670  
 Asp Tyr Asp Leu Glu Thr Phe Val Asn Lys Ala Glu Ser Ala Leu Ala  
 675 680 685  
 Gln Gln Ala Lys His Phe Ser Ala Leu Arg Asp Val Ile Lys Ala Leu  
 690 695 700

Arg Leu Ala Met Gln Leu Glu Glu Gln Ala Ser Arg Gln Ile Ser Ser  
705 710 715 720

Lys Lys Arg Pro Gln  
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<213> Homo sapiens

<400> 21

Arg Val Lys Ala Thr Leu Ser Glu Arg Lys Ile Gly Asp Ser Cys Asp  
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Lys Asp Leu Pro Leu Lys Phe Cys Glu Phe Pro Gln Lys Thr Ile Met  
20 25 30

Pro Gly Phe Lys Thr Thr Val Tyr Val Ser His Ile Asn Asp Leu Ser  
35 40 45

Asp Phe Tyr Val Gln Leu Ile Glu Asp Glu Ala Glu Ile Ser His Leu  
50 55 60

Ser Glu Arg Leu Asn Ser Val Lys Thr Arg Pro Glu Tyr Tyr Val Gly  
65 70 75 80

Pro Pro Leu Gln Arg Gly Asp Met Ile Cys Ala Val Phe Pro Glu Asp  
85 90 95

Asn Leu Trp Tyr Arg Ala Val Ile Lys Glu Gln Gln Pro Asn Asp Leu  
100 105 110

Leu Ser Val Gln Phe Ile Asp Tyr Gly Asn Val Ser Val Val His Thr  
115 120 125

Asn Lys Ile Gly Arg Leu Asp Leu Val Asn Ala Ile Leu Pro Gly Leu  
130 135 140

Cys Ile His Cys Ser Leu Gln Gly Phe Glu Val Pro Asp Asn Lys Asn  
145 150 155 160

Ser Lys Lys Met Met His Tyr Phe Ser Gln Arg Thr Ser Glu Ala Ala  
165 170 175

Ile Arg Cys Glu Phe Val Lys Phe Gln Asp Arg Trp Glu Val Ile Leu  
180 185 190

Ala Asp Glu His Gly Ile Ile Ala Asp Asp Met Ile Ser Arg Tyr Ala  
195 200 205

Leu Ser Glu Lys Ser Gln Val Glu Leu Ser Thr Gln Val Ile Lys Ser  
210 215 220

Ala Ser Ser Lys Ser Val Asn Lys Ser Asp Ile Asp Thr Ser Val Phe  
225 230 235 240

Leu Asn Trp Tyr Asn Pro Glu Lys Lys Met Ile Arg Ala Tyr Ala Thr  
245 250 255

101050-20964860

Val	Ile	Asp	Gly	Pro	Glu	Tyr	Phe	Trp	Cys	Gln	Phe	Ala	Asp	Thr	Glu	
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Lys	Leu	Gln	Cys	Leu	Glu	Val	Glu	Val	Gln	Thr	Ala	Gly	Glu	Gln	Val	
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Ala	Asp	Arg	Arg	Asn	Cys	Ile	Pro	Cys	Pro	Tyr	Ile	Gly	Asp	Pro	Cys	
		290				295					300					
Ile	Val	Arg	Tyr	Arg	Glu	Asp	Gly	His	Tyr	Tyr	Arg	Ala	Leu	Ile	Thr	
305					310					315					320	
Asn	Ile	Cys	Glu	Asp	Tyr	Leu	Val	Ser	Val	Arg	Leu	Val	Asp	Phe	Gly	
				325					330					335		
Asn	Ile	Glu	Asp	Cys	Val	Asp	Pro	Lys	Ala	Leu	Trp	Ala	Ile	Pro	Ser	
			340					345					350			
Glu	Leu	Leu	Ser	Val	Pro	Met	Gln	Ala	Phe	Pro	Cys	Cys	Leu	Ser	Gly	
		355					360					365				
Phe	Asn	Ile	Ser	Glu	Gly	Leu	Cys	Ser	Gln	Glu	Gly	Asn	Asp	Tyr	Phe	
		370				375					380					
Tyr	Glu	Ile	Ile	Thr	Glu	Asp	Val	Leu	Glu	Ile	Thr	Ile	Leu	Glu	Ile	
385					390					395					400	
Arg	Arg	Asp	Val	Cys	Asp	Ile	Pro	Leu	Ala	Ile	Val	Asp	Leu	Lys	Ser	
				405					410					415		
Lys	Gly	Lys	Ser	Ile	Asn	Glu	Lys	Met	Glu	Lys	Tyr	Ser	Lys	Thr	Gly	
			420					425					430			
Ile	Lys	Ser	Ala	Leu	Pro	Tyr	Glu	Asn	Ile	Asp	Ser	Glu	Ile	Lys	Gln	
		435					440					445				
Thr	Leu	Gly	Ser	Tyr	Asn	Leu	Asp	Val	Gly	Leu	Lys	Lys	Leu	Ser	Asn	
		450				455					460					
Lys	Ala	Val	Gln	Asn	Lys	Ile	Tyr	Met	Glu	Gln	Gln	Thr	Asp	Glu	Leu	
465					470					475					480	
Ala	Glu	Ile	Thr	Glu	Lys	Asp	Val	Asn	Ile	Ile	Gly	Thr	Lys	Pro	Ser	
				485				490						495		
Asn	Phe	Arg	Asp	Pro	Lys	Thr	Asp	Asn	Ile	Cys	Glu	Gly	Phe	Glu	Asn	
			500					505					510			
Pro	Cys	Lys	Asp	Lys	Ile	Asp	Thr	Glu	Glu	Leu	Glu	Gly	Glu	Leu	Glu	
		515					520					525				
Cys	His	Leu	Val	Asp	Lys	Ala	Glu	Phe	Asp	Asp	Lys	Tyr	Leu	Ile	Thr	
		530				535					540					
Gly	Phe	Asn	Thr	Leu	Leu	Pro	His	Ala	Asn	Glu	Thr	Lys	Glu	Ile	Leu	
545					550					555					560	
Glu	Leu	Asn	Ser	Leu	Glu	Val	Pro	Leu	Ser	Pro	Asp	Asp	Glu	Ser	Lys	
				565					570					575		

Glu Phe Leu Glu Leu Glu Ser Ile Glu Leu Gln Asn Ser Leu Val Val  
580 585 590

Asp Glu Glu Lys Gly Glu Leu Ser Pro Val Pro Pro Asn Val Pro Leu  
595 600 605

Ser Gln Glu Cys Val Thr Lys Gly Ala Met Glu Leu Phe Thr Leu Gln  
610 615 620

Leu Pro Leu Ser Cys Glu Ala Glu Lys Gln Pro Glu Leu Glu Leu Pro  
625 630 635 640

Thr Ala Gln Leu Pro Leu Asp Asp Lys Met Asp Pro Leu Ser Leu Gly  
645 650 655

Val Ser Gln Lys Ala Gln Glu Ser Met Cys Thr Glu Asp Met Arg Lys  
660 665 670

Ser Ser Cys Val Glu Ser Phe Asp Asp Gln Arg Arg Met Ser Leu His  
675 680 685

Leu His Gly Ala Asp Cys Asp Pro Lys Thr Gln Asn Glu Met Asn Ile  
690 695 700

Cys Glu Glu Glu Phe Val Glu Tyr Lys Asn Arg Asp Ala Ile Ser Ala  
705 710 715 720

Leu Met Pro Phe Ser Leu Arg Lys Lys Ala Val Met Glu Ala Ser Thr  
725 730 735

Ile Met Val Tyr Gln Ile Ile Phe Gln Asn Tyr Arg Thr Pro Thr Leu  
740 745 750

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<400> 22

Ala Glu Val Lys Thr Pro Phe Asp Leu Ala Lys Ala Gln Glu Asn Ser  
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Asn Ser Val Lys Lys Lys Thr Lys Phe Val Asn Leu Tyr Thr Arg Glu  
20 25 30

Arg Gln Asp Arg Leu Ala Val Leu Leu Pro Gly Arg His Pro Cys Asp  
35 40 45

Cys Leu Gly Gln Lys His Lys Leu Ile Asn Asn Cys Leu Ile Cys Gly  
50 55 60

Arg Ile Val Cys Glu Gln Glu Gly Ser Gly Pro Cys Leu Phe Cys Gly  
65 70 75 80

Thr Leu Val Cys Thr His Glu Glu Gln Asp Ile Leu Gln Arg Asp Ser  
85 90 95

Asn Lys Ser Gln Lys Leu Leu Lys Lys Leu Met Ser Gly Val Glu Asn

100					105					110					
Ser	Gly	Lys	Val	Asp	Ile	Ser	Thr	Lys	Asp	Leu	Leu	Pro	His	Gln	Glu
		115					120					125			
Leu	Arg	Ile	Lys	Ser	Gly	Leu	Glu	Lys	Ala	Ile	Lys	His	Lys	Asp	Lys
	130					135					140				
Leu	Leu	Glu	Phe	Asp	Arg	Thr	Ser	Ile	Arg	Arg	Thr	Gln	Val	Ile	Asp
145					150					155					160
Asp	Glu	Ser	Asp	Tyr	Phe	Ala	Ser	Asp	Ser	Asn	Gln	Trp	Leu	Ser	Lys
				165					170					175	
Leu	Glu	Arg	Glu	Thr	Leu	Gln	Lys	Arg	Glu	Glu	Glu	Leu	Arg	Glu	Leu
			180					185					190		
Arg	His	Ala	Ser	Arg	Leu	Ser	Lys	Lys	Val	Thr	Ile	Asp	Phe	Ala	Gly
		195					200					205			
Arg	Lys	Ile	Leu	Glu	Glu	Glu	Asn	Ser	Leu	Ala	Glu	Tyr	His	Ser	Arg
	210					215					220				
Leu	Asp	Glu	Thr	Ile	Gln	Ala	Ile	Ala	Asn	Gly	Thr	Leu	Asn	Gln	Pro
225					230					235					240
Leu	Thr	Lys	Leu	Asp	Arg	Ser	Ser	Glu	Glu	Pro	Leu	Gly	Val	Leu	Val
			245						250					255	
Asn	Pro	Asn	Met	Tyr	Gln	Ser	Pro	Pro	Gln	Trp	Leu	Thr	Thr	Gln	Val
			260					265					270		
Gln	Pro	His	Arg	Arg	Arg	Leu	Ser	Val	Leu	Gln	Asp	Leu	Asp		
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		20						25					30		
Gln	Thr	Ala	Ser	Ile	Phe	Lys	Gln	Pro	Val	Thr	Lys	Val	Thr	Asn	His
		35					40					45			
Pro	Ser	Asn	Lys	Val	Lys	Ser	Asp	Pro	Gln	Arg	Met	Asn	Glu	Gln	Pro
	50					55					60				
Arg	Gln	Leu	Phe	Trp	Glu	Lys	Arg	Leu	Gln	Gly	Leu	Ser	Ala	Ser	Asp
65					70					75					80
Val	Thr	Glu	Gln	Ile	Ile	Lys	Thr	Met	Glu	Leu	Pro	Lys	Gly	Leu	Gln
				85					90					95	

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Gly Val Gly Pro Gly Ser Asn Asp Glu Thr Leu Leu Ser Ala Val Ala  
100 105 110

Ser Ala Leu His Thr Ser Ser Ala Pro Ile Thr Gly Gln Val Ser Ala  
115 120 125

Ala Val Glu Lys Asn Pro Ala Val Trp Leu Asn Thr Ser Gln Pro Leu  
130 135 140

Cys Lys Ala Phe Ile Val Thr Asp Glu Asp Ile Arg Lys Gln Glu Glu  
145 150 155 160

Arg Val Gln Gln Val Arg Lys Lys Leu Glu Glu Ala Leu Met Ala Asp  
165 170 175

Ile Leu Ser Arg Ala Ala Asp Thr Glu Glu Met Asp Ile Glu Met Asp  
180 185 190

Ser Gly Asp Glu Ala  
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Met Glu Glu Pro Gln Ser Asp Pro Ser Val Glu Pro Pro Leu Ser Gln  
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Glu Thr Phe Ser Asp Leu Trp Lys Leu Leu Pro Glu Asn Asn Val Leu  
20 25 30

Ser Pro Leu Pro Ser Gln Ala Met Asp Asp Leu Met Leu Ser Pro Asp  
35 40 45

Asp Ile Glu Gln Trp Phe Thr Glu Asp Pro Gly Pro Asp Glu Ala Pro  
50 55 60

Arg Met Pro Glu Ala Ala Pro Pro Val Ala Pro Xaa Thr Ser Ser Ser  
65 70 75 80

Tyr Thr Gly Gly Pro Cys Thr Ser Pro Leu Leu Ala Pro Val Ile Phe  
85 90 95

Val Pro Ser Gln Lys Thr Tyr Gln Gly Ser Tyr Gly Phe Arg Leu Gly  
100 105 110

Phe Leu His Ser Gly Thr Ala Lys Ser Val Thr Cys Thr Tyr Ser Pro  
115 120 125

Ala Leu Asn Lys Met Phe Cys Gln Leu Ala Lys Thr Cys Pro Val Gln  
130 135 140

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<212> PRT
<213> Homo sapiens

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Met Glu Thr Pro Ser Gln Arg Arg Ala Thr Arg Ser Gly Ala Gln Ala
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Ser Ser Thr Pro Leu Ser Pro Thr Arg Ile Thr Arg Leu Gln Glu Lys
                               20                               25                               30

Glu Asp Leu Gln Glu Leu Asn Asp Arg Leu Ala Val Tyr Ile Asp Arg
35                               40                               45

Val Arg Ser Leu Glu Thr Glu Asn Ala Gly Leu Arg Leu Arg Ile Thr

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50					55					60					
Glu	Ser	Glu	Glu	Val	Val	Ser	Arg	Glu	Val	Ser	Gly	Ile	Lys	Ala	Ala
65					70					75					80
Tyr	Glu	Ala	Glu	Leu	Gly	Asp	Ala	Arg	Lys	Thr	Leu	Asp	Ser	Val	Ala
				85					90					95	
Lys	Glu	Arg	Ala	Arg	Leu	Gln	Leu	Glu	Leu	Ser	Lys	Val	Arg	Glu	Glu
			100					105					110		
Phe	Lys	Glu	Leu	Lys	Ala	Arg	Asn	Thr	Lys	Lys	Glu	Gly	Asp	Leu	Ile
		115					120					125			
Ala	Ala	Gln	Ala	Arg	Leu	Lys	Asp	Leu	Glu	Ala	Leu	Leu	Asn	Ser	Lys
		130					135					140			
Glu	Ala	Ala	Leu	Ser	Thr	Ala	Leu	Ser	Glu	Lys	Arg	Thr	Leu	Glu	Gly
145							150					155			160
Glu	Leu	His	Asp	Leu	Arg	Gly	Gln	Val	Ala	Lys	Leu	Glu	Ala	Ala	Leu
				165					170					175	
Gly	Glu	Ala	Lys	Lys	Gln	Leu	Gln	Asp	Glu	Met	Leu	Arg	Arg	Val	Asp
			180					185						190	
Ala	Glu	Asn	Arg	Leu	Gln	Thr	Met	Lys	Glu	Glu	Leu	Asp	Phe	Gln	Lys
			195				200					205			
Asn	Ile	Tyr	Ser	Glu	Glu	Leu	Arg	Glu	Thr	Lys	Arg	Arg	His	Glu	Thr
		210					215					220			
Arg	Leu	Val	Glu	Ile	Asp	Asn	Gly	Lys	Gln	Arg	Glu	Phe	Glu	Ser	Arg
225							230					235			240
Leu	Ala	Asp	Ala	Leu	Gln	Glu	Leu	Arg	Ala	Gln	His	Glu	Asp	Gln	Val
				245					250					255	
Glu	Gln	Tyr	Lys	Lys	Glu	Leu	Glu	Lys	Thr	Tyr	Ser	Ala	Lys	Leu	Asp
			260					265					270		
Asn	Ala	Arg	Gln	Ser	Ala	Glu	Arg	Asn	Ser	Asn	Leu	Val	Gly	Ala	Ala
			275				280					285			
His	Glu	Glu	Leu	Gln	Gln	Ser	Arg	Ile	Arg	Ile	Asp	Ser	Leu	Ser	Ala
			290				295					300			
Gln	Leu	Ser	Gln	Leu	Gln	Lys	Gln	Leu	Ala	Ala	Lys	Glu	Ala	Lys	Leu
305							310					315			320
Arg	Asp	Leu	Glu	Asp	Ser	Leu	Ala	Arg	Glu	Arg	Asp	Thr	Ser	Arg	Arg
				325					330					335	
Leu	Leu	Ala	Glu	Lys	Glu	Arg	Glu	Met	Ala	Glu	Met	Arg	Ala	Arg	Met
			340					345					350		
Gln	Gln	Gln	Leu	Asp	Glu	Tyr	Gln	Glu	Leu	Leu	Asp	Ile	Lys	Leu	Ala
			355				360					365			
Leu	Asp	Met	Glu	Ile	His	Ala	Tyr	Arg	Lys	Leu	Leu	Glu	Gly	Glu	Glu

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<212>    PRT
<213>    Homo sapiens

<400>    26
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Gly	Asp	Val	Glu	Arg	Val	Lys	Arg	Leu	Val	Thr	Pro	Glu	Lys	Val	Asn
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Ser	Arg	Asp	Thr	Ala	Gly	Arg	Lys	Ser	Thr	Pro	Leu	His	Phe	Ala	Ala
		115					120					125			
Gly	Phe	Gly	Arg	Lys	Asp	Val	Val	Glu	Tyr	Leu	Leu	Gln	Asn	Gly	Ala
	130					135					140				
Asn	Val	Gln	Ala	Arg	Asp	Asp	Gly	Gly	Leu	Ile	Pro	Leu	His	Asn	Ala
145					150					155					160
Cys	Ser	Phe	Gly	His	Ala	Glu	Val	Val	Asn	Leu	Leu	Leu	Arg	His	Gly
				165					170					175	
Ala	Asp	Pro	Asn	Ala	Arg	Asp	Asn	Trp	Asn	Tyr	Thr	Pro	Leu	His	Glu
			180					185					190		
Ala	Ala	Ile	Lys	Gly	Lys	Ile	Asp	Val	Cys	Ile	Val	Leu	Leu	Gln	His
		195					200					205			
Gly	Ala	Glu	Pro	Thr	Ile	Arg	Asn	Thr	Asp	Gly	Arg	Thr	Ala	Leu	Asp
	210					215					220				
Leu	Ala	Asp	Pro	Ser	Ala	Lys	Ala	Val	Leu	Thr	Gly	Glu	Tyr	Lys	Lys
225					230					235					240
Asp	Glu	Leu	Leu	Glu	Ser	Ala	Arg	Ser	Gly	Asn	Glu	Glu	Lys	Met	Met
				245					250					255	
Ala	Leu	Leu	Thr	Pro	Leu	Asn	Val	Asn	Cys	His	Ala	Ser	Asp	Gly	Arg
			260					265					270		
Lys	Ser	Thr	Pro	Leu	His	Leu	Ala	Ala	Gly	Tyr	Asn	Arg	Val	Lys	Ile
		275					280					285			
Val	Gln	Leu	Leu	Leu	Gln	His	Gly	Ala	Asp	Val	His	Ala	Lys	Asp	Lys
	290					295					300				
Gly	Asp	Leu	Val	Pro	Leu	His	Asn	Ala	Cys	Ser	Tyr	Gly	His	Tyr	Glu
305					310				315						320
Val	Thr	Glu	Leu	Leu	Val	Lys	His	Gly	Ala	Cys	Val	Asn	Ala	Met	Asp
				325					330					335	
Leu	Trp	Gln	Phe	Thr	Pro	Leu	His	Glu	Ala	Ala	Ser	Lys	Asn	Arg	Val
			340					345					350		
Glu	Val	Cys	Ser	Leu	Leu	Leu	Ser	Tyr	Gly	Ala	Asp	Pro	Thr	Leu	Leu
		355					360					365			
Asn	Cys	His	Asn	Lys	Ser	Ala	Ile	Asp	Leu	Ala	Pro	Thr	Pro	Gln	Leu
	370					375					380				
Lys	Glu	Arg	Leu	Ala	Tyr	Glu	Phe	Lys	Gly	His	Ser	Leu	Leu	Gln	Ala
385					390					395					400
Ala	Arg	Glu	Ala	Asp	Val	Thr	Arg	Ile	Lys	Lys	His	Leu	Ser	Leu	Glu
				405					410					415	



Thr	Gln	Gly	Arg	His	Ser	Thr	Pro	Leu	His	Leu	Ala	Ala	Gly	Tyr	Asn
			740					745					750		
Asn	Leu	Glu	Val	Ala	Glu	Tyr	Leu	Leu	Gln	His	Gly	Ala	Asp	Val	Asn
	755						760					765			
Ala	Gln	Asp	Lys	Gly	Gly	Leu	Ile	Pro	Leu	His	Asn	Ala	Ala	Ser	Tyr
	770					775					780				
Gly	His	Val	Asp	Val	Ala	Ala	Leu	Leu	Ile	Lys	Tyr	Asn	Ala	Cys	Val
785					790					795					800
Asn	Ala	Thr	Asp	Lys	Trp	Ala	Phe	Thr	Pro	Leu	His	Glu	Ala	Ala	Gln
				805					810					815	
Lys	Gly	Arg	Thr	Gln	Leu	Cys	Ala	Leu	Leu	Leu	Ala	His	Gly	Ala	Asp
			820					825					830		
Pro	Thr	Leu	Lys	Asn	Gln	Glu	Gly	Gln	Thr	Pro	Leu	Asp	Leu	Val	Ser
		835					840					845			
Ala	Asp	Asp	Val	Ser	Ala	Leu	Leu	Thr	Ala	Ala	Met	Pro	Pro	Ser	Ala
	850					855					860				
Leu	Pro	Ser	Cys	Tyr	Lys	Pro	Gln	Val	Leu	Asn	Gly	Val	Arg	Ser	Pro
865					870					875					880
Gly	Ala	Thr	Ala	Asp	Ala	Leu	Ser	Ser	Gly	Pro	Ser	Ser	Pro	Ser	Ser
				885					890					895	
Leu	Ser	Ala	Ala	Ser	Ser	Leu	Asp	Asn	Leu	Ser	Gly	Ser	Phe	Ser	Glu
			900					905					910		
Leu	Ser	Ser	Val	Val	Ser	Ser	Ser	Gly	Thr	Glu	Gly	Ala	Ser	Ser	Leu
			915				920					925			
Glu	Lys	Lys	Glu	Val	Pro	Gly	Val	Asp	Phe	Ser	Ile	Thr	Gln	Phe	Val
	930					935					940				
Arg	Asn	Leu	Gly	Leu	Glu	His	Leu	Met	Asp	Ile	Phe	Glu	Arg	Glu	Gln
945					950					955					960
Ile	Thr	Leu	Asp	Val	Leu	Val	Glu	Met	Gly	His	Lys	Glu	Leu	Lys	Glu
				965					970					975	
Ile	Gly	Ile	Asn	Ala	Tyr	Gly	His	Arg	His	Lys	Leu	Ile	Lys	Gly	Val
			980					985					990		
Glu	Arg	Leu	Ile	Ser	Gly	Gln	Gln	Gly	Leu	Asn	Pro	Tyr	Leu	Thr	Leu
		995					1000					1005			
Asn	Thr	Ser	Gly	Ser	Gly	Thr	Ile	Leu	Ile	Asp	Leu	Ser	Pro	Asp	
	1010					1015					1020				
Asp	Lys	Glu	Phe	Gln	Ser	Val	Glu	Glu	Glu	Met	Gln	Ser	Thr	Val	
	1025					1030					1035				
Arg	Glu	His	Arg	Asp	Gly	Gly	His	Ala	Gly	Gly	Ile	Phe	Asn	Arg	
	1040					1045					1050				

Tyr Asn Ile Leu Lys Ile Gln Lys Val Cys Asn Lys Lys Leu Trp  
1055 1060 1065

Glu Arg Tyr Thr His Arg Arg Lys Glu Val Ser Glu Glu Asn His  
1070 1075 1080

Asn His Ala Asn Glu Arg Met Leu Phe His Gly Ser Pro Phe Val  
1085 1090 1095

Asn Ala Ile Ile His Lys Gly Phe Asp Glu Arg His Ala Tyr Ile  
1100 1105 1110

Gly Gly Met Phe Gly Ala Gly Ile Tyr Phe Ala Glu Asn Ser Ser  
1115 1120 1125

Lys Ser Asn Gln Tyr Val Tyr Gly Ile Gly Gly Gly Thr Gly Val  
1130 1135 1140

Gln Phe Thr Lys Thr Asp Leu Val Thr Phe Ala Thr Ala Ala Ala  
1145 1150 1155

Leu Leu Pro Gly Asn Leu Gly Lys Val Phe Pro Ala Val Gln Cys  
1160 1165 1170

Asn Glu Asn Gly Thr Ser Pro Pro Gly His His Ser Val Thr Gly  
1175 1180 1185

Arg Pro Ser Val Asn Gly Leu Ala Leu Ala Glu Tyr Val Ile Tyr  
1190 1195 1200

Arg Gly Glu Gln Ala Tyr Pro Glu Tyr Leu Ile Thr Tyr Gln Ile  
1205 1210 1215

Met Arg Pro Glu Gly Met Val Asp Gly  
1220 1225

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<400> 27

His Ile Gln Lys Gln Lys His Phe Asn Glu Arg Glu Ala Ser Arg Val  
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Val Arg Asp Val Ala Ala Ala Leu Asp Phe Leu His Thr Lys Gly Ile  
20 25 30

Ala His Arg Asp Leu Lys Pro Glu Asn Ile Leu Cys Glu Ser Pro Glu  
35 40 45

Lys Val Ser Pro Val Lys Ile Cys Asp Phe Asp Leu Gly Ser Gly Met  
50 55 60

Lys Leu Asn Asn Ser Cys Thr Pro Ile Thr Thr Pro Glu Leu Thr Thr  
65 70 75 80

Pro Cys Gly Ser Ala Glu Tyr Met Ala Pro Glu Val Val Glu Val Phe  
85 90 95



Thr Asp Gln Ala Thr Phe Tyr Asp Lys Arg Cys Asp Leu Trp Ser Leu  
100 105 110

Gly Val Val Leu Tyr Ile Met Leu Ser Gly Tyr Pro Pro Phe Val Gly  
115 120 125

His Cys Gly Ala Asp Cys Gly Trp Asp Arg Gly Glu Val Cys Arg Val  
130 135 140

Cys Gln Asn Lys Leu Phe Glu Ser Ile Gln Glu Gly Lys Tyr Glu Phe  
145 150 155 160

Pro Asp Lys Asp Trp Ala His Ile Ser Ser Glu Ala Lys Asp Leu Ile  
165 170 175

Ser Lys Leu Leu Val Arg Asp Ala Lys Gln Lys Leu Ser Ala Ala Gln  
180 185 190

Val Leu Gln His Pro Trp Val Gln Gly Gln Ala Pro Glu Lys Gly Leu  
195 200 205

Pro Thr Pro Gln Val Leu Gln Arg Asn Ser Ser Thr Met Asp Leu Thr  
210 215 220

Leu Phe Ala Ala Glu Ala Ile Ala Leu Asn Arg Gln Leu Ser Gln His  
225 230 235 240

Glu Glu Asn Glu Leu Ala Glu Glu Pro Glu Ala Leu Ala Asp Gly Leu  
245 250 255

Cys Ser Met Lys Leu Ser Pro Pro Cys Lys Ser Arg Leu Ala Arg Arg  
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Arg Ala Leu Ala Gln Ala Gly Arg Gly Glu Asn Arg Ser Pro Pro Thr  
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Ala Leu  
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Ile Pro Glu Lys Ile Gln Lys Ala Phe Asp Asp Ile Ala Lys Tyr Phe  
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Ser Lys Glu Glu Trp Glu Lys Met Lys Ala Ser Glu Lys Ile Phe Tyr  
35 40 45

Val Tyr Met Lys Arg Lys Tyr Glu Ala Met Thr Lys Leu Gly Phe Lys  
50 55 60

Ala Thr Leu Pro Pro Phe Met Cys Asn Lys Arg Ala Glu Asp Phe Gln

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Pro Gln Met Thr Phe Gly Arg Leu Gln Gly Ile Ser Pro Lys Ile Met						
	100			105		110
Pro Lys Lys Pro Ala Glu Glu Gly Asn Asp Ser Glu Glu Val Pro Glu						
	115			120		125
Ala Ser Gly Pro Gln Asn Asp Gly Lys Glu Leu Cys Pro Pro Gly Lys						
	130			135		140
Pro Thr Thr Ser Glu Lys Ile His Glu Arg Ser Gly Pro Lys Arg Gly						
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Glu His Ala Trp Thr His Arg Leu Arg Glu Arg Lys Gln Leu Val Ile						
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Tyr Glu Glu Ile Ser Asp Pro Glu Glu Asp Asp Glu						
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Thr Glu Glu Gln Glu Ala Ala Ser Ser Ser Ser Thr Leu Val Glu Val						
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Thr Leu Gly Glu Val Pro Ala Ala Glu Ser Pro Asp Pro Pro Gln Ser						
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Pro Gln Gly Ala Ser Ser Leu Pro Thr Thr Met Asn Tyr Pro Leu Trp						
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Ser Gln Ser Tyr Glu Asp Ser Ser Asn Gln Glu Glu Glu Gly Pro Ser						
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Thr Phe Pro Asp Leu Glu Ser Glu Phe Gln Ala Ala Leu Ser Arg Lys						
	100			105		110
Val Ala Glu Leu Val His Phe Leu Leu Leu Lys Tyr Arg Ala Arg Glu						
	115			120		125
Pro Val Thr Lys Ala Glu Met Leu Gly Ser Val Val Gly Asn Trp Gln						
	130			135		140
Tyr Phe Phe Pro Val Ile Phe Ser Lys Ala Ser Ser Ser Leu Gln Leu						
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Val	Phe	Gly	Ile	Glu	Leu	Met	Glu	Val	Asp	Pro	Ile	Gly	His	Leu	Tyr	
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Ile	Phe	Ala	Thr	Cys	Leu	Gly	Leu	Ser	Tyr	Asp	Gly	Leu	Leu	Gly	Asp	
				180					185					190		
Asn	Gln	Ile	Met	Pro	Lys	Ala	Gly	Leu	Leu	Ile	Ile	Val	Leu	Ala	Ile	
				195					200					205		
Ile	Ala	Arg	Glu	Gly	Asp	Cys	Ala	Pro	Glu	Glu	Lys	Ile	Trp	Glu	Glu	
				210					215					220		
Leu	Ser	Val	Leu	Glu	Val	Phe	Glu	Gly	Arg	Glu	Asp	Ser	Ile	Leu	Gly	
225					230					235					240	
Asp	Pro	Lys	Lys	Leu	Leu	Thr	Gln	His	Phe	Val	Gln	Glu	Asn	Tyr	Leu	
				245					250					255		
Glu	Tyr	Arg	Gln	Val	Pro	Gly	Ser	Asp	Pro	Ala	Cys	Tyr	Glu	Phe	Leu	
				260					265					270		
Trp	Gly	Pro	Arg	Ala	Leu	Val	Glu	Thr	Ser	Tyr	Val	Lys	Val	Leu	His	
				275					280					285		
His	Met	Val	Lys	Ile	Ser	Gly	Gly	Pro	His	Ile	Ser	Tyr	Pro	Pro	Leu	
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Arg	Gly	Pro	Glu	Ser	Arg	Leu	Leu	Glu	Phe	Tyr	Leu	Ala	Met	Pro	Phe	
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Ala	Thr	Pro	Met	Glu	Ala	Glu	Leu	Ala	Arg	Arg	Ser	Leu	Ala	Gln	Asp	
				100					105					110		
Ala	Pro	Pro	Leu	Pro	Val	Pro	Gly	Val	Leu	Leu	Lys	Glu	Phe	Thr	Val	
				115					120					125		

Ser	Gly	Asn	Ile	Leu	Thr	Ile	Arg	Leu	Thr	Ala	Ala	Asp	His	Arg	Gln
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145					150					155					160
Trp	Ile	Thr	Gln	Cys	Phe	Leu	Pro	Val	Phe	Leu	Ala	Gln	Pro	Pro	Ser
				165					170					175	
Gly	Gln	Arg	Arg												
			180												